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*Help Your
Community Chest Drive*

SEPTEMBER, 1943

Rexall Serves the Reading

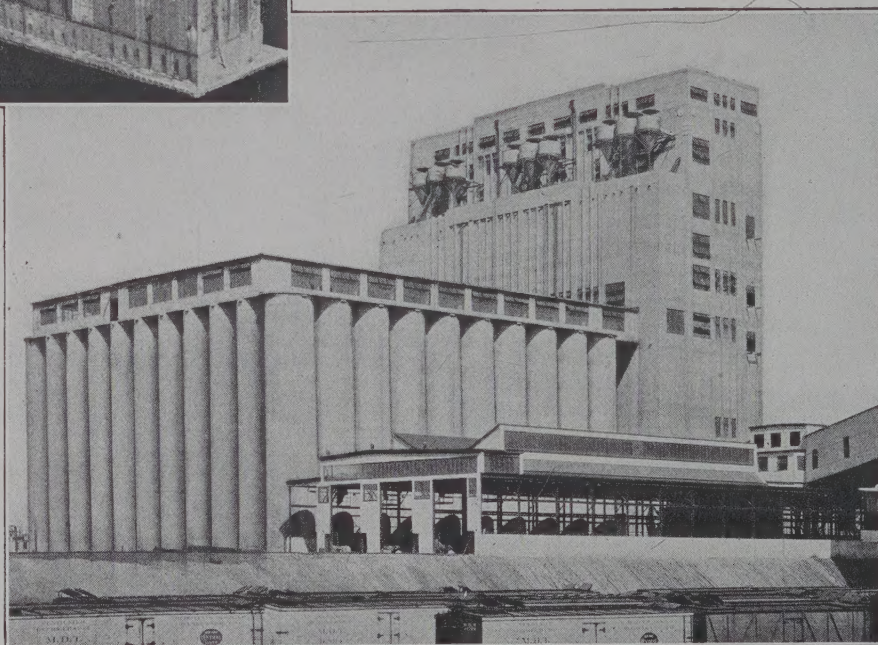


Indicative of the efficiency of REXALL Inner-Locked Belting in grain handling plants is the long service it has given the Reading Co. in Philadelphia.

The old Port Richmond Elevator which served the Port of Philadelphia for 50 years installed REXALL Inner-Locked Belting in 1919.



C. W. MACK
General Manager
Port Richmond
Grain Elevator



K. H. ZIEGLER
Superintendent
Port Richmond
Grain Elevator

The new Port Richmond Grain Elevator of Reading Co., with a capacity of 2,500,000 bushels, built at a cost of \$4,000,000, installed the following REXALL Inner-Locked Belting and opened for operation January 1928.

CONVEYOR BELTS

378'.....48" x 4 ply	84'.....36" x 4 ply
467'.....48" x 4 ply	416'.....36" x 4 ply
467'.....48" x 4 ply	416'.....36" x 4 ply
209'.....48" x 4 ply	416'.....36" x 4 ply
1568'.....36" x 5 ply	126'.....36" x 4 ply
1752'.....36" x 5 ply	521'.....36" x 4 ply
1728'.....36" x 5 ply	1495'.....36" x 4 ply
1541'.....36" x 5 ply	503'.....36" x 4 ply
1746'.....46" x 5 ply	539'.....36" x 4 ply
138'.....36" x 4 ply	1484'.....36" x 4 ply

LEG BELTS

454'.....46" x 8 ply
454'.....46" x 8 ply
452'.....34" x 7 ply
452'.....34" x 7 ply
452'.....34" x 7 ply
456'.....34" x 7 ply
228'.....34" x 6 ply
53'.....34" x 6 ply

15 years of satisfactory service and still going strong.

May we serve you?

IMPERIAL BELTING COMPANY

1750 So. Kilbourn Ave.

CHICAGO, ILL.

GRAIN

Vincent Blum
Tells About

Corn Storage Experiments

After 14 Months
In Venezuela

CORN storage is a tough enough problem, even up here where a fellow can get everything from friendly advice to modern facilities, but here's a man who trekked down to Venezuela to show that government how to store its corn. I've showed them and kept the corn in good condition in spite of the 140° climate, up to 98% humidity, blue eye, mould and fungus growths, the weevil, the disease, the lethargic methods of working, and scores of other problems which you don't have to face, or which are greatly multiplied that near the Equator. Funny thing too,—Mr. Blum is still alive and in good health.



AS one first steams into Porto La Guaria the sight that meets one's eyes is absolutely and literally breathtaking. The towering coastal mountains drop sheerly into the sea. And perched high on the cliffs in so seemingly precarious a way that one would readily believe that a tremor or strong wind would blow it down into the blue Caribbean below, is the town of La Guaria.

A little farther into the mountains there are many little grass-roofed, mud farmhouses that always seem to find themselves "hung" on the side of a cliff. The cornfield belonging to a particular farm will stretch around, behind, and above the house—and from below it you'd swear it would have to be seeded with a shotgun. Most of the mountain farms are small, from 3 to 5 acres, and these small farmers raise corn and beans, primarily for their own use.

Farther inland, in the fertile valleys behind the mountains, there are first coffee and sugar plantations, then corn and bean farms.

Potential Big; Development Slow

CARACAS, the capital, is a beautiful city of approximately 150,000 population. There are many modern homes and a considerable number of low-priced American bungalows. However, the cost of living is extremely high and the common practice is to go to Curacao to buy things, as they are even cheaper there than in "the States".

Another drawback to the city's liveability is the sanitary conditions which are antiquated and a high percentage of the population suffers

chronically from malaria and syphilis.

Politically, the country was a dictatorship for years. The present President is more liberal and is trying to make the country here agriculturally self-sufficient. This will take 15 years to accomplish for although the country is large (350,000 sq. mi.) the population is only 3,250,000 and high humidity and heavy infestation are big problems,—plus, of course, the unenergetic disposition of the people due to disease, climate, and non-commercial background.

Oil contributed 45% of the national income, but this has gone down since the start of the war. This dependence on a single commodity which is so variable is another reason for the country's struggle for self-sufficiency. Coffee, although an important product, is subsidized 20 to 25%, and it is not of the highest grade. New York is the principal market to which it is shipped.

In spite of all the drawbacks to progress at present, the future of Venezuela should be very good provided there is adequate leadership. Natural resources are vast and varied, the soil is a rich loam which averages practically nine feet in depth, and natural advantages such as geographical position, varied topography, and favorable growing climate should offset most of the natural disadvantages which cannot be overcome by man's own efforts.

Post-Harvest Shortage

HOWEVER, our own particular job down there was to work out

a system whereby their corn could be stored long enough to avoid the shortage which in the past occurred every year about 3 months after harvesting.

The native way of planting corn is much different from our own way. He plants his rows 15" to 18" apart, and 4 to 8 stalks to a hill. He does not know much about cultivation and after his corn is mature he does not harvest it, but rather goes down his field and bends the corn stalk down just below the bottom ear of corn, leaving the ears to hang upside down. The reasons for this are to dry the corn, to make the ear shed water when it rains, and to keep the parrots and other birds from damaging and eating the corn.

One of the faults with this method is that it allows the insects to get inside the ear and lay eggs, consequently in a couple of months the corn is unfit for consumption. This is the great difficulty in Venezuela. They have two crops of corn a year, but could have four. However, storing it in the native way in sacks, they are able to keep the corn only 3 months, which in turn causes the price to rise as much as 300% in the following 3 months before the new crop is harvested.

Enough corn is raised to provide for the whole population, if only a method of conserving native corn were possible. Up until this time it has been believed that the storage of corn in tanks would be out of the question due to the high temperature,



Several views of the two pilot plants showing topography of country and vegetation. "It's grand country," Mr. Blum (in insert) will tell you

"GRAIN," Board of Trade, Chicago. Published Monthly.

high humidity and insect infestation in corn producing areas.

Build To Defeat Bugs

SOME method to end the periodic rise and fall of corn stocks had to be arrived at and an American firm finally contracted to build 2 plants,—but a penalty-guarantee of 25% of the erection costs was demanded before the government would authorize construction. This guarantee was to the effect that the corn would keep 6 months and come out in good condition. So quite a task and responsibility was placed on both the equipment and the labor.

The 2 plants are identical,—of 75,000 bu capacity, 6 storage tanks each, and the same material and equipment. The headhouse is 68' wide and 20' long, with concrete foundation and basement of steel construction, the whole covered with sheet iron. It consisted of 4 floors, is powered with a 60 hp Diesel engine, all belt driven. Machinery includes a 750 bu per hr Western sheller in the basement and a Western Gyrating Cleaner and Dust Collector on the 3rd floor.

Two 1000 bu per hr elevator legs, one with 13 x 7" Salem buckets for carrying corn and cob from sheller to cleaner, the other with 10 x 5½" Minnesota V buckets for transfer and loading of shelled corn; one 1000 bu per hr chain conveyor, to carry cob or shelled corn from truck dump to sheller; four 9" screw conveyors, one for filling the storage tanks, two for removing corn from under storage tanks, and one from dryer to elevator legs make up the elevating equipment.

Power for light, drier, and truck dump are furnished by a Fairbanks-Morse 5 KVA generator. The headhouse has a manually operated manlift from the 1st to the 4th floor and also is equipped with inside ladders.

What! No Zelenys?

THE six storage tanks are Columbian steel bolted cylindrical tanks, 46' 8" high and 22' 10" wide with a capacity of 12,500 bu each. They are set in 2 rows of 3 tanks each on a concrete foundation with conveyor tunnels below each row of tanks—which have concrete hopper bottoms. Each tank has four 3" test holes on the side of the tanks next to a ladder running from ground to roof, for testing the temperature condition of the corn.

The scale house is 18' high, 52' long and 12' wide, with concrete ramps leading to a 15 ton Fairbanks truck scale, and a 5 ton capacity hopper over the chain conveyor. A 5 ton electric hoist is installed to dump trucks.

The drier building is 40' high, 12' wide and 17' long and was built separate from the head house. It housed a 100 bu per hour capacity Randolph direct heat, oil burning drier, with a 50 bu capacity garner above and a 20 bu hopper below. It

also has an automatic electric temperature control and an automatic feed control installed.

The entire plant covered an area of 106' long by 75' wide, including the ramps leading to the scale.

The type of corn raised in Venezuela is about 95% white and 5% yellow, and is mostly an open pollinated dent variety, although it gives the appearance of being inbred with a flint variety and seems to contain some popcorn.

The seed is picked from the former crop although some is occasionally smuggled in, but the government is going to a great deal of trouble to

SHE STOOPS TO CONQUER



Salvage of metal shavings in machining operations is an important part of the scrap program in many plants throughout the nation.

try and establish a better type of corn, as the present strain is of poor yield. The average farmer considers 25 bu per acre a good crop.

No corn grading standards were available from the government, so the U. S. Standards became our guide in this matter. The corn ran from 12 to 25% moisture, from 9 to 18% damage, from 58 lbs to 62 lbs in weight and with 6 to 25 adult weevil in every 1000 grams of corn.

Shrinkage on the average amounted to 20% mainly due to the kernels of corn that were so badly weevil eaten that they broke up in the sheller and were removed by the cleaner screen.

Upsets Our Practices

IN the drying of this corn we soon discovered that the corn would not stand more than 185° F. If the temperature was raised above this,

the corn would crack and sometimes give the appearance of beginning to pop. The drying of corn turned out to be a very essential operation as we later found that natural corn as low as 12% moisture would begin to give signs of spoilage after 6 to 7 weeks of storage, while kiln dried could stand 4 months without turning.

The corn was infested with the black rice weevil, the granary weevil, bran bug, and the angoumois moth. Of these the black rice weevil did the most damage and was the most predominant and the hardest to kill. The drier heat would kill or the fans would blow out the other insects, but the black rice weevil would not be affected by either of these actions. A good fumigant, which is regularly advertised in "GRAIN", by the way, was the only thing that got rid of them in anything like an effective way.

It proved necessary to kiln dry corn down to 11% and it would leave the drier at a temperature sometimes as high as 135°. This corn could be left in storage for 1 month and then would need turning and fumigation. The average temperature of corn in storage is 85° and this corn would stay for 4 months before requiring turning and then it resisted breakage very well. The tanks did not sweat nor did they heat from the sun. For example, the outside temperature might be 120°, 1" from the wall 104°, 6" from the wall 95°, 9" from the wall 88°, and the center of the tanks would be 83° to 85°. At the low content of 11% moisture, the corn stood this high storage temperature without heating, and also resisted more heavy weevil infestation.

In the fumigation of corn in storage the customary dosage of 1½ gal. to 1000 bu proved to be successful, but after much experimenting we found the one-dosage or even the continuous stream method was not satisfactory. The layer method of fumigating proved to be most efficient and economical and gave close to a 100% kill. We also found it quite necessary to fumigate the screw conveyors and elevator boots to keep from contaminating the corn during turning operations.

In order to prove to the entire satisfaction of the government that the plants, "La Encrucijada" and the "Acarigua" had fulfilled their 6 months trial period successfully, a commission was sent by the government to make their own tests and these tests proved that the corn was in much better condition than at the time it was received as to moisture, damage, and weevil infestation.

Thus the Venezuelan government will doubtless continue to expand present agricultural program.

*Mr. Blum delivered this colorful paper before the Superintendents meeting in Duluth. He is superintendent for the Omaha (Neb.) Elevator Co. now.

IN A BAD WAY

An old lady walked into a court and said to one of the judges. "Are you the judge of reprobates?"

"I am Judge of Probate," he replied.

"Well, that's it, I suspect. You see, my husband died detested and left me several infidels, and I want to be their executioner."

30%

More **EFFICIENT**

50%

More **EFFECTIVE**

The DAY Co.

2938 Pillsbury Ave., Minneapolis, Minn.

Successful Fumigation

WHEN

GRAIN CANNOT BE TURNED

Grain 25-30 feet in depth can now be treated for pest control with LARVACIDE in a new form:

Larvacide

MIX
CHLORPICRIN-CARBON TETRACHLORIDE

Hosed or sprinkled onto surface, the still liquid LARVACIDE 15-Mix sinks into the grain, quickly becoming a powerful tear gas with the penetration required to kill even the larvae and egg life inside the grain kernels.

Treating CORN in good condition costs only \$2.60—2.75 per thousand bushels . . . WHEAT just a trifle higher than this.

LARVACIDE 15-MIX comes in 50 Gallon Drums only and should not be confused with Straight LARVACIDE.

WHEN GRAIN CAN BE TURNED

use Straight

Larvacide

CHLORPICRIN

Lowest cost effective grain treatment on record, we believe . . . only \$1.50—to \$1.70 per thousand bushels, in closed concrete bins.

Straight LARVACIDE comes in cylinders 25-180 lbs., and handy 1 lb. Dispenser Bottles, each in sealed can, 6 or 12 to wooden case. Stocked in major cities and available quickly.

Both LARVACIDE 15-MIX and Straight LARVACIDE are toxic to all granary insects, including mites, the lesser grain borer, and other usually hard-to-kill.

INSEPARABLE SELF WARNING QUALITY is a feature of both LARVACIDE 15-MIX and Straight LARVACIDE.

Give your operators this extra Safeguard.

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FUMIGATION

By Frank Byrnes, Chicago

THE problems of infestation are as much a part of the daily life of a plant superintendent as the receiving and shipping of grain. It is true that the further South you go the more the trouble, but there is plenty of infestation far up into Canada. The situation became so acute a while back that the railroad interests in Canada and the United States were sponsoring a bill to compel the fumigation of every grain shipment immediately before loading into cars.

We have been looking for relief from government agencies but the funds are too meagre to permit a scientific study of our infestation problems on a commercial scale. Our real hope for relief lies with responsible commercial organizations that are financially able to experiment commercially on a large scale.

Laboratory Tests Not Infallible

YOU have often heard it said that it is a long step from the laboratory to commercial application of laboratory discoveries. This applies to fumigants as much as anything else. *The perfect fumigant can be no better than its application.*

It would be wonderfully convenient if we could obtain 100% kills in our elevator bins by unscrewing the top from a can and pouring a liquid over the surface of a grain bin. But we all know that a fumigant does not begin its work until the vapor or gas has formed and begins to penetrate through the grain. If the gas forms properly and penetrates thoroughly, we get the kill; if not, we have thrown good money after bad.

Successful fumigation is more than a matter of dumping chemicals into grain bins. There are many variables to be considered each time a job of fumigation is to be done. The chief variables are these:

1. Kind of infestation.
2. Kind of grain.
3. Absorption of the fumigant by the grains.
4. Temperature and moisture content.
5. Construction and bin dimensions.

The resistance of the different kinds of insects varies over a wide range and likewise the various stages of the same insect vary in resistance from the egg to the adult.

Penetration Speed Fluctuates

GASES travel at different rates of speed through the various grains—through oats very slowly, through corn very fast. The flow of gas must be controlled to maintain dispersion at a rate of speed to suit the density of the grain. Otherwise, the gas will be wasted and the killing job will be incomplete.

A wood cribbed or wood studded bin is very leaky. A special application needs to be developed if satisfactory kills are to be obtained. Your fumigant may appear to be good but the chances are you are merely driving your insects out of one bin into another. This is especially true of a fumigant that gasifies and penetrates slowly. A gas that overtakes the insects quickly renders them incapable of escape.

Concrete, steel, tile and brick construction may be maintained fairly tight, but the diameter and depth, and the relation of the diameter to the depth must be considered. Stating that so much of a given fumigant is needed per thousand bushels is perhaps incomplete and misleading. Fumigating 10,000 bushels in a small diameter bin of great depth takes much less gas than in a bin of large diameter and little depth.

Absorption Varies with Grain

THE absorption of a fumigant varies with each kind of grain. This is one of the long steps from the laboratory to commercial application. A relatively small amount of a fumigant may give complete kill repeatedly in the laboratory, while the amount must be multiplied many times to meet commercial conditions. This need not be left to chance.

Science has provided means for checking concentration and toxicity of the fumigating gas in all parts of a bin during tests in standard bins on a full commercial scale. These tests show that not only does the gas travel slow through oats and fast through corn, but also that the oats absorb more of the fumigant than corn. The manufacturer must provide his customers with set rules of application to provide for these variations.

These are a few of the more important problems a manufacturer of a fumigant must solve before he can place in our hands a consistently sat-

isfactory product with dependable rules of application to meet all conditions. He has and must continue to spend large sums of money to bring his product to a stage of perfection, and the expenditures must continue in search of improvement and to meet unforeseen problems that may present themselves. He must maintain a complete service for his customers and if he is to help us overcome our individual problems of infestation he must have our complete co-operation.

MANPOWER AT TERMINALS

There is one difficulty at present in connection with moving grain quickly from the country to terminals, which we can speak of with definite knowledge. It is that of available manpower at the terminals, manpower to unload freight cars quickly so that the cars can return more speedily to the country for more grain. Labor today at the terminals is scarce, and in consequence thousands of cars full of grain are at this moment held up at Fort William and Port Arthur for the lack of men to unload them.

Surely this is one "bottleneck" that could be quickly corrected, for the extra amount of labor required is not very great. An additional 300 men, we estimate, available at the lakehead terminals would soon have these cars unloaded, and in addition would enable these thousands of cars, and all the others which are employed in handling grain, to make a quicker "turn-about," and so be able to haul much more grain each month from country elevators to terminals. The hauling of more grain from country elevators to the terminals would, of course, also result in making much more room available in country elevators for grain which farmers at this moment cannot market.—Searle Grain Company, Ltd., Winnipeg.

WMC URGES MORE TRAINING

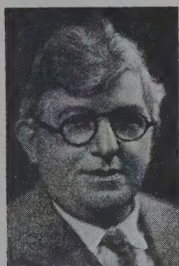
More training facilities for persons already on your payrolls is now being urged by WMC. This action is becoming necessary as labor shortages become more acute.

It takes both . . . airplanes and tanks to equip the Yanks. It takes both War Bonds and taxes to lick the Axis. Buy more WAR BONDS.

BETTER COOPERING NEEDED

By J. A. Schmitz, Before Chicago Chapter SOGES

THE number of cars arriving at Terminal Markets leaking at the Grain Door clearly indicates the need for more care in the installation of grain door barricades. We must not



overlook the importance of a thorough inspection of each car tendered for bulk grain loading. The fact that so large a percentage of leaks are at the grain doors does not detract from the importance of the thorough examination

that should be given the entire body of each car that is tendered for use.

In this connection, may I point out the major defects in cars that make them unsuitable or unsafe for bulk grain loading:

1. Cars with insides saturated with oil, manure, fertilizer or stench making and unclean substances.

2. Cars with side posts, door posts, or end posts loose or broken out at bottom.

3. Cars with leaky roofs.

4. Cars in which any condition exists that precludes the making of the car grain tight and safe by the use of the available cooperage material.

Takes Less Time Than Filing Claim

In order to assure the safe transportation of the grain loaded into a car, there must be a thorough inspection of the car box inside and outside. As pointed out, door posts, end and side posts, must be inspected and if found broken or loose at the bottom, the car should be rejected.

The cooper should assure himself that the side and end sheathings of cars are grain tight. Loose sheathing can sometimes be fastened by nailing; cracks between sheathing boards can be covered and made grain tight, as can cracks between the floor boards and at the end of short floor boards. All such cracks should be calked with paper or covered with paper pad properly fastened in place.

Good coopering pays. It saves grain. It avoids annoyance. It is an accepted axiom that the extra time it takes to make sure that a car is grain tight is less than the time it takes to file a claim.

CORN GRIND JUMPS

Compared with the 9,198,363-bu. of corn ground by 11 refiners of starches, syrups, sugars and other derivatives for domestic use during July, 10,213,782-bu. were ground during August. This compares with 9,717,326-bu. ground during July, 1942, and 10,038,854-bu. during August a year ago.



BEHIND the victories of our fighting men abroad stand America's half-billion acres of farm lands at home.

An army of 6 million determined farmers work those acres.

And this is what they are doing.

They're feeding over 8 million men in our armed forces.

They're sending overseas 5 million dollars' worth of food a day on our lend-lease program.

They're providing food for the 35 million families busy at home.

We know, because by far the greater part of what they produce

is carried by the railroads — part of the million-and-a-third tons of all kinds of freight hauled a mile every minute of the day and night.

Like the farmers, the railroads have lost many of their men to Uncle Sam. And they have to get along with little or no new equipment.

But, also like the farmers, they are determined to do their level best to meet all the demands made upon them — to back up to the limit the men who fight for our free American way of self-reliance, enterprise and initiative.

ASSOCIATION OF
AMERICAN RAILROADS
ALL UNITED FOR VICTORY

DON'T BE IMPOSED ON!



THERE'S ONLY ONE GRAIN FUMIGANT CALLED **Weevil-Cide**

Weevil-Cide is not the common name of grain fumigants. It is the registered trade name of a distinct fumigant that has definitely demonstrated its safety, economy, effectiveness and uniform dependability through years of usage.

Only Weevil-Cide and Weevil-Cide's advisory service, based on extensive practical experience, can produce results that have made Weevil-Cide the 3 to 1 choice of the grain trade.

There are fumigants *and* fumigants, but only *one* Weevil-Cide. Don't be imposed on.

3 to 1
CHOICE OF
THE
GRAIN TRADE

THE **Weevil-Cide**
THE DEPENDABLE GRAIN FUMIGANT
1110 HICKORY STREET
KANSAS CITY, MO.

COMPANY

Heat and Moisture

METAMORPHOSIS

In Grain Storage

By Edgar S. Miller

Before Society of Grain Elevator Superintendents

WHEN people speak of chemical action and physical action, in connection with wheat or other grains, or with anything else, they are apt to forget that one is likely to be the cause and the other the effect. Which is to say that there are many chemical processes which must be induced by the application of heat, and the other way round. In reality, chemistry is merely a branch of general physics, but it is of such importance, and its special laws are so intricate, that the scientist possessed of common sense prefers to give it a very high place and almost dignify it as a science in itself. Certainly, however, the "physicist" who is not familiar with the fundamentals of chemistry cannot get very far, and the "chemist" without a pretty fair knowledge of general physics would necessarily be a very poor chemist, since he could not begin to comprehend the laws of chemistry.

All this preamble is justified by one thing only. If we want to know something about the why of the behavior of stored grain under varying conditions of temperature we must be prepared to give some thought to the whys and wherefores. The phenomena are not difficult to understand; it is merely that we too often fail to make any effort toward getting an understanding.

Moisture Most Important

IN connection with grain in storage bins, it will be agreed, I think, that the most significant condition is moisture content. If little moisture is present, a rather high temperature, resulting from heat imparted to the grain from some outside source, will not cause "heating." Nevertheless, the chemical phenomena responsible for heating could not proceed without some heat, and at very low temperatures, slow combustion—the process most responsible for heat damage—may be wholly absent, even when considerable moisture is available.

Ordinarily, however, the temperatures obtaining in parcels of moist grain are ample for the stimulation of the beginning of "respiration;" and since this is in reality merely a process in which carbon combines with oxygen to form carbon dioxide and produce heat, it is not hard to realize that once the "fire" is started it grows and spreads, increasing the temperature and further stimulating the chemical action of combustion.

Looking at an individual wheat berry, for example, and examining the physical forces affecting it under various conditions, we will find that in some respects it resembles a steam boiler with hundreds of valves open. When heat is taken in there is a tendency for the contained water to evaporate and build up a little pressure. If this pressure is higher than that of the air surrounding the berry the vapor will enter the air until equilibrium is reached. If the quantity of air is small, its vapor pressure will soon equal that of the moisture in the grain, and both temperatures and pressures will mount.

Liquid water will be vaporized from the grain, of course, and it might be expected that with this evaporation the berries would eventually become so dry that chemical activity would be arrested. But such is the chemical nature of the constituents of grain that under favorable conditions of temperature a part of their hydrogen and oxygen will combine to form new water, which will do its part in stimulating chemical action and increasing the rapidity of the process of combustion.

Explanation of Metamorphosis

ACTUALLY, the production of heat is due to chemical action, but actually the physical phases—the metamorphosis of sensible heat to energy or of energy to sensible heat—play a big part in the proceedings. Liquid water may be transformed to

vapor or vapor changed to liquid by this metamorphosis of heat, and it is a certainty that when grain is damaged by heat (not considering the effects of a conflagration, of course) the condition is due to a situation that should not have been allowed to come about. Which is to say that if heat is not allowed to accumulate in the interstices of the grain, temperatures will not rise to the point of danger.

Any considerable heat damage may be avoided by preventing an accumulation of heat, for without that the grain will not get "hot." If at the first indication of a temperature rise steps are taken to cool the grain by subjecting it to a copious bath of "fresh" atmospheric air, chemical activity will be arrested by the removal of heat, whereas if nothing is done about it temperature rises and periods of increased combustion will follow each other in quick succession.

As all practical men are aware, aeration is the only available means of preventing an accumulation of heat. In modern storage, with bins or tanks of considerable height, no man can be expected to make a good guess at what is going on down in the mass of grain. Nothing but an adequate and reliable thermometer system can reveal this.

The cost of "turning" grain is considerable, both with respect to power consumed and losses incurred through broken berries, and to move the grain from one bin to another unnecessarily, aerating it by passing over grain separators or through aspirators, is poor economy. Yet to fail to do something about it when even one small spot in the bin is heating may easily prove disastrous.

The main point is that grain sufficiently aerated, whether by turning it or by passing adequate quantities of atmospheric air through it as it lies in the bin, will never become damaged by heat. The damper the grain the more efficient the cooling by aeration, since the mass exposed to air actually has the properties of a humidifier, in some degree. The more the moisture, the more the evaporation; and since it requires approximately 1000 heat units to metamorphose water from liquid to vapor form, and since when plenty of air is present

this heat is made latent and removed, it is not hard to understand why this cooling is accomplished.

Exposure Doesn't Generate Heat

IN conclusion I would like to say that the theory that the process of heat production in grain is facilitated by exposure to air certainly cannot be borne out by a careful examination of facts. Always there is sufficient air in contact with the individual berries to provide ample oxygen for carrying out the oxidizing process, and even if the interstices were filled with an inert gas the danger of heating would still not be removed; for, as already mentioned, all grain contains both carbon and oxygen which under certain conditions can combine, with the formation of carbon dioxide and the production of heat.

It is true that layer of grain at the top of a bin may sometimes be found hotter than that below it, but when this is found the circumstance is due to the condensation of water vapor from the mass below on the surfaces of the berries of the upper layer, and the cause for this is the facility with which the latter loses heat. The condensed vapor enters the berries of this upper layer of liquid water, and naturally the chemical process of combustion is again stimulated. Often the condensation actually occurs in the space between the grain and the covering of the bins, and a positive assertion can be made that the drops of water falling back are not always due to "leaky roofs."

RATINGS ADJUSTED

Preference ratings assigned for maintenance, repair and operating supplies, under CMP Reg. 5, have been adjusted to a new pattern of relative industrial urgency, recently established by the Requirements committee, WPB announced Sept. 14. At the same time schedules I and II have been modified to reflect the existence of specific MRO preference rating orders which are applicable to specific industries.

GRAIN GRADING DATA

Here's a new handy reference book of interest to every grain man. It deals with "How to Grade Grain." It's brief, written in every day language, yet it is accurate and conforms to government procedure. In fact, it is a summary of official U. S. Department of Agriculture instructions. It is a part of the new Seedburo catalog which illustrates and describes not only the products formerly han-



dled, but many new items of grain grading, seed testing and grain and seed handling equipment and related products. The book is well worth keeping as a catalog alone, but when coupled with the sections on "How to Grade Grain" it becomes a most valuable working tool for men in the grain, seed and allied industries. Copies are complimentary when requested on company letterheads. Write to Seedburo Equipment Company, Brooks Building, Chicago 6, Illinois.

Can't Contribute to Trust

Even if contributions to profit-sharing trusts for your employees meet exemption requirements of the Treasury, WLB has advised regional boards that such may be regarded as wage increases if they are not pension trusts.

CARLOADING LEVELING OFF

Carloadings of grain and grain products, as reported by the Association of American Railroads, wound up the past week's period being 23.3% ahead of 1942, and 27.4% ahead of those recorded in 1941, as reflected for the weeks ending:

	1943	1942	1941
August 21	56,225	49,672	43,625
August 28	54,288	47,467	43,536
Sept. 4	54,277	44,084	36,878
Sept. 11	47,768	45,396	45,046
37 weeks (+000)	1,834	1,487	1,439

Malt Stocks to Shrink

Notwithstanding a production of malt, which in recent months has been 1,500,000-bu. more than the malt producers thought they could turn out earlier this year, estimates based on the improved inventory position indicate that malt stocks on hand at the end of this year will be 2 million-bu. less than on Jan. 1, 1943.

REPAIR REGULATIONS

Blanket preference ratings assigned for MRO purposes may be applied by persons eligible to use them for the repair of plant machinery and equipment, even if the repair job does not involve delivery of repair parts or materials, WPB rules.

Ratings assigned on PD-1A, and PD-3A certificates and other ratings assigned to the delivery of specific repair parts or materials may also be applied to installation of the parts or materials or to the repair job alone if it is found that installing the parts and materials is not necessary.

For the purpose of this part of the order, "repair" means to fix a plant, machinery, or equipment after it has broken down or when it is about to break down. It does not include upkeep or maintenance service such as periodic inspection, cleaning, painting, lubricating and other services.

Enough food has been wasted in American homes in a year to feed all the men now in military services of the U. S. and provide for Lend-Lease shipments of food.

Reference Book . . . FREE



Yes . . . a Reference Book and Catalog all in one . . . that's the New SEEDBURO catalog. It contains instructions on "How to Grade Grain" adapted from the U.S.D.A. official instructions. They are brief and easy to follow . . . written in everyday language. It contains much other information valuable for Reference.

325 USEFUL ITEMS

This New Catalog lists and describes over three hundred twenty five items. It contains not only seed

and grain testing equipment, but a host of supplies and accessories used in elevators, flour mills, seed houses, food dehydrating plants, etc.

The Seedburo Reference Book and catalog is useful . . . and helpful . . . the year around. Write for it NOW.

"HEADQUARTERS" for Moisture Testers, Triers, Scales, Sieves, Sample Pans, Germinators and All Grain Testing Equipment

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CHICAGO 6, ILLINOIS

SEEDBURO
EQUIPMENT COMPANY



Overtime Compensation For Salaried Employees

PAYMENT of additional overtime compensation can be made to salaried employees, including supervisory personnel, on account of the extension of the normal workweek, according to a statement of the commissioner of internal revenue. Salaried employees receiving more than \$5,000 a year, executives receiving more than \$30 a week but less than \$5,000 a year, and administrative and professional employees receiving more than \$200 a month but less than \$5,000 a year, who are not represented by a recognized labor organization are covered by the following ruling:

Where the workweek is established beyond 40 hours, employers are required to pay employees subject to the wage-hour act, additional compensation at the rate of time and one-half for all hours worked in excess of 40 in any one calendar week. Consequently payment for overtime to the wage earned without any additional compensation to the salaried personnel in many cases results in the wage earner receiving more compensation than his immediate supervisors. In order that employers may maintain a reasonable pay differential between the wage earner and his supervisors and between the several levels of supervision, the Treasury has outlined a method under which payment of additional compensation to salaried personnel may be determined.

To Maintain Minimum Differential

UNDER these instructions the maximum amount the Treasury will allow is such an amount as is necessary to keep the minimum differential between the inter-related job classifications. The amounts allowed will be proportionately less at the higher levels.

Approval by the Treasury of such salary increases is required in all cases except where the employer had a regularly established overtime payment plan in effect on October 3, 1942. The maximum limitations within which payment will be made are outlined by the Treasury as follows:

"Additional compensation may be paid at the same overtime rates to all employees in a particular plant for the actual scheduled hours worked in excess of the regular 40-hour workweek as is paid to the highest hourly paid employee, whose rate is subject to the fair labor standards act, if their compensation for the 40-hour workweek is equal to or less than that of such highest hourly paid employee.

In the application of this principle, the highest participating pay level in direct line of supervision and the minimum additional compensation necessary for that level shall be determined to the satisfaction of the commissioner. The amount allowable to the highest rated hourly employee will then be progressively reduced for the several intervening pay levels in such manner that each succeeding higher level receives a proportionately lesser amount, until the minimum amount allowable for the highest participating pay level as previously determined is reached.

This plan may be followed with respect to all salaried positions between the highest hourly rated employee receiving compensation at overtime rates and the highest salaried posi-

tion for which overtime compensation is required."

Must Submit Details for Approval

THE Treasury states that employers in submitting applications for approval to make overtime adjustments to salaried employees, should include the following information:

"The hours of the extended workweek; the hours of the previous workweek; the rates of pay of the wage and salaried employees under the jurisdiction of the National War Labor Board; the amounts and rates of overtime presently being paid to those groups as well as to the groups under the jurisdiction of the commissioner; the number of employees for whom payments are proposed, together with their rates of pay; a description of the several types or levels of supervision; a sufficiently clear description of the job classification and positions of those required to work the same or more hours than the wage earners under the extended workweek and for whom overtime compensation is required; the top level of supervision at which the minimum additional compensation is required; the amount of additional compensation deemed necessary in the top level of supervision so determined; and the basis upon which both the top level of supervision and the amount of additional compensation to be paid that level have been determined."

STIMULATES NEW CONSTRUCTION

STORAGE facilities built under Certificates of Necessity issued by the War Department, may be amortized or charged off in a period shorter than the 60 months specified, if (1) the President declares the emergency ended before the end of the 60 months' period, or (2) if the facility is no longer necessary in the emergency and that the Secretary of War issues a certification to that effect before the end of the 60 months' period.

If the necessity, The Grain & Feed Dealers National Association points out, for the facility ends any time within the 60 months' period, the warehouseman taxpayer could thus amortize his costs (against federal taxes) over the shorter period and obtain adjustment for previous years for which he had figured the full 60 months amortization rate.

Balloon-Type Storage

A balloon-type 500,000-bu. storage annex and headhouse 300'x100' is about completed at Gluek, Minn., for Cargill, Inc. The grain is loaded in from the modern headhouse equipped with a 30-ton truck scale by 4,000-bu. per hr. screw conveyors, and is loaded out by belt conveyors of the same capacity through a tunnel in the floor.

MODERNIZE YOUR BUCKET ELEVATORS FOR Greater Capacity



War-time volume, labor shortage, material restrictions, etc., are challenging the ingenuity of many an elevator operator today. Thoughts of tearing out old bucket elevator legs in anticipation of larger legs with larger buckets to obtain greater capacity isn't the remedy for the situation.

In the first place, use of needed critical material and labor to make changes hinders the war effort. Secondly, larger buckets are oftentimes unnecessary, because desired capacity increases can be obtained with "Nu-Hy" Buckets that are scientifically designed for close spacing and maximum carrying capacity without backlegging losses.

No other bucket can approach the "Nu-Hy." We have demonstrated it in countless installations. Your old legs can be modernized and brought to high efficiency by changing over to "Nu-Hy's" and following out our recommendations.

Our Form No. 76 will enable us to make a Capacity Analysis for you. From there on you will experience smooth sailing. Write today.

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Darling Stricken With Poisoning

M. M. "Mac" Darling, Goldproof Elevator, Louisville, has been under the weather with a food poisoning. His home address is 924 Hess Lane.

Waterbury Now Vice President

Jack Waterbury, formerly Ass't Super at the Santa Fe Elevator, Chicago, is now Vice President of the Emerson Electric Co., St. Louis.

Convention A Highlight

I have always considered the annual convention as the highlight and greatest value in belonging to the Society of Grain Elevator Superintendents.—E. I. Odell, Davis-Noland-Merrill Grain Co., Kansas City.

McCall to Topeka

O. B. McCall, formerly with Hart-Bartlett-Sturtevant Grain Co., Kansas City, is now super for the Farmers Union Jobbing Ass'n, Topeka, Kan. —Jim Kier, K. C. Chapter Sec'y.

Ben Blackburn to Acme

Ben Blackburn starts to work Oct. 1st for the Acme-Evans Mlg. Co., Indianapolis. He has been associated with the National Mlg. Co., Toledo. Mr. Blackburn is quite active in milling association affairs.

CHAPTERS OPEN SEASON

Despite the sustained tempo of high activity among the membership, three of the Superintendent's chapters will launch their monthly meetings this month, namely Kansas City, Omaha, and Minneapolis. The Chicago chapter will open its series of discussions Oct. 11th, whereas the Fort William-Port Arthur Supers started in August.

Say "Hello" For Me

Last Saturday when I arrived home from work I found "GRAIN" just inside the door. My wife was away and having left no "orders" (something very unusual for all of us) I could spend some time perusing its pages, and was both quite surprised as well as really shocked.

I was surprised when I saw the reference to my working in the shipyard, and then truly shocked to read of the death of Fred Hawley. Fred worked with me at the Bartlett-Frazier Calumet "A" for quite some time before leaving with Art Reagan for Norris Grain Co.

I see, too, that John Shawcroft, another South Chicago boy, is also with Norris. Certainly and surely time marches on, and is thinning the old timers down. These items made me feel a wee bit lonesome or something, so thought I had better drop a word to say hello and thanks.—Robert G. Hunt 707 S. Sheridan, Tacoma, Wash.

THEIS ADDRESSES SUPERS

Mr. Frank A. Theis was the principal speaker at our meeting opening our fall and winter series this month. He spoke on "How Did We Get in This Business, And Why Do We Stay?" As usual, his remarks were very interesting and I am sure that all the members enjoyed it. In fact, we are always looking forward to having him with us.

During his talk he mentioned the caliber of men that are handling the huge quantities of grain in this market, citing Charles F. Peterson, his own retired Super, as a typical example. An honorary member of the Supers' Society, Mr. Theis is President of Simonds-Shields-Theis Grain Co.

Thirty-two members and associates attended, which included our new baby member, W. H. Gravatt, Ass't Super of the Davis-Noland-Merrill Grain Co., operators of the Santa Fe elevator "A". John Lyle, Schreiber Milling & Grain Co., St. Joseph, attended. Sorry our next newest member, Mr. Lee Brittain from Blair Elevator Corp., Atchison, didn't get there, but will be going up there one of these days and I'll make it a point to drop in on him. Our meetings are scheduled for the 3rd Tuesday of the month at the Pickwick Hotel.—Jim Kier, Standard Mlg. Co., K. C. Chapter Sec'y.

Grain Story in "Life"

The "Life" magazine photographers were through Duluth recently. Next month they will run a story on wheat from the farm through the mills. They covered the Farmers Union elevator here, very thoroughly from the Richardson car dumper through to their marine leg.—Oscar W. Olsen, Peavey Duluth (Minn.) Elevator.

HART-CARTER ATLAS

Prized will be the Hart-Carter "Atlas" distributed at the Supers' convention at Duluth this June, for its utility in times like these makes it indispensable. The flags of the Allied Nations are followed by a list of United Nations, their form of government, area in square miles, and population. The same is enumerated for the occupied and Axis countries.

Comparative army sizes, along with proposed expansion, is shown. A reproduction of the Declaration by the United Nations, along with signatures, follows. Plane performance, production of strategic raw materials, facts on Alaska and the Aleutians, U. S. war production and finance, correct display of flags, instructions for properly sending mail to servicemen, airline distances between leading cities of the world, a log book of the war, and numerous sectional, battle area, continental and global maps are among those helpful items included.

MORE AND MORE

THEY ARE

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System — a complete job of many exacting operations.



THE WAY THEY'RE ***BREAKING OUT*** •• ***LOOKS LIKE AN*** ***Epidemic!***

We are referring to dust explosions. Ever see the like of it? So many really *bad* ones. Of course, they are not "catching" but you can never tell when one will catch up with you.

So why not play safe with Robertson Safety Ventilators and eliminate the unnecessary risk that lays you wide open to disaster? Mounted on your elevator legs, Robertson Safety Ventilators continuously vent dangerous fine dust with automatic gravity action. *Should* a primary blast develop it is immediately ushered outside through the Robertson Vent, thus preventing spread of secondary explosions.

Write today for descriptive literature. Delays are often dangerous.

H. H. ROBERTSON CO.

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Pittsburgh, Pa.

GOPHER CHAPTER NEWS

Nobody realized what an able Superintendent our Chapter President Bob Bredt was until we learned that he had arranged his affairs well enough to give notice that he was taking a vacation during the month of August. However, he was back in town soon enough to attend the Program committee meeting at which plans were outlined for programs for monthly meetings of the coming year. The first meeting will be held Tuesday, September 28th. It would be a pleasure to see some of the Superintendents from the Head-of-the-Lakes in attendance at some of our meetings this year.

Maynard Losie, Past Chapter President, has accepted the chairmanship of the Program committee this year and will be assisted by Past President E. J. Raether, who is back on the job again around the Chamber—although not yet in the best of health. Associate members of the committee are those able and willing fellows: Bob Morgan of W. S. Nott Co., Walter Kostick of R. R. Howell Co., and George Patchin of Appraisal Service Co.

The Telephone committee, which cooperates with the Program committee in the matter of assuring good attendance at our meetings, will function this year under the leadership of Pat

Bohan, Chairman, and will consist of Edwin Dillman, Herman Peterson, E. N. Dietmeier and Smith Champlin (alternate).

Roy Gretzer, recently transferred from Cargill's elevator in St. Louis, is now well established in Minneapolis at Elevator "S" from where Wallie Herberg has been transferred to Elevator "T". We hope to see both of these Cargill men at our meetings regularly and expect to become better acquainted with them.

Christensen to Safety Helm

Paul Christensen has again accepted the chairmanship of the Mill & Elevator Section of Hennepin County Safety Council which will soon be formulating plans for the Third Annual Occupational Safety Conference. These conferences have been promoted during the past two years in an attempt to conserve manpower in the war and civilian production effort and have proven instructive and entertaining.

Mr. William J. Hoofe, for many years Director of Public and Industrial Relations for the Chase Brass & Cooper Company, Cleveland, Ohio, is now associated with the Archer-Daniels-Midland Company in the same capacity, and will hereafter be in charge of all matters pertaining to labor relations and plant safety. Mr. Hoofe is a member of the War La-

bor Board and has also been actively interested in the National Safety Council for many years.

Mr. and Mrs. Leonard Danielson, Chicago, surprised us with a visit while they were vacationing nearby at White Bear Lake. Guess Arcaay Farms Milling Company must have had a pretty slack season, (ha ha) to permit Leonard the luxury of a vacation after his convention trip to the Head-of-the-Lakes. Maybe Gil Lane buckled down and gave them a lift?—Clifford A. MacIver, Assistant General Superintendent, Archer-Daniels-Midland Co., Vice Pres., Minneapolis Chapter.

MINNEAPOLIS DOINGS

The Program committee and the Executive committee held a combined meeting Aug. 30 in an endeavor to lay out the season's programs. Present were Jim Auld, Maynard Losie, Walter Kostick, Bob Morgan, George Patchin, Cliff MacIver and Bob Bredt. Considerable time was devoted to the discussion of proper and timely subjects for the monthly meetings and the topic and speaker for the first meeting is quite definitely decided upon.

The question of new members also came up and it was unanimously voted to extend invitations to all of the allied members of the grain trade to join with our Association. The influx of grinding equipment into many plants which formerly handled nothing but the whole grains, has opened an extensive field for new members which we hope to cultivate quite intensively. There will also be a systematic campaign waged to bring in many of the present Supers who have either been in and dropped out or who have never had the opportunity of sampling the benefits of our organization.

While Freddie's Cafe has curtailed his large gatherings quite drastically, due to the food shortage, he has promised to go along with our group so we are assured of our old meeting place and a reliable source for good meals.

Ed Raether was unable to attend the meeting but we trust to have him at the next one.

Harry Hansen is up and around again and contacting his old friends and customers.—Robert R. Bredt, Fruen Milling Co., Minneapolis Chapter President.

H'AIN'T IT THE TRUTH

The Super who seldom, if ever, turns out,

And allows his interest to dim,
Is always the first to emit a loud squawk

When G.E.S. loses interest in him.

Want to Meet Her?

Paul Christensen tells us about the girl who, when asked her war ambition, replied: "I'd like to be an air raid siren."



S-A-F-E-T-Y F-I-R-S-T

**Attend Your
National Safety
Congress,
OCT. 5-6-7TH**

Stop at this convenient hotel across the street from the Board of Trade.

Visit the new dining room, the Atlantic Clipper, where you will enjoy a large variety of delicious seafoods, steaks and seasonable dishes.

Economical rates and good service.

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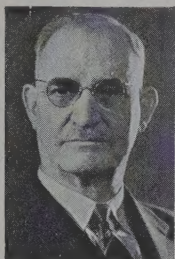
★

Be sure to make your reservations now so that we can take care of you in good shape.



SIBBALD, MacIVER TAKE HONORS

Fred Sibbald, National Grain Co., Ltd., Ft. William chapter sec'y, and Cliff MacIver, Archer-Daniels-Midland Co., Minneapolis chapter vice pres., took top honors in the Society's annual new-membership contest. Fred accounted for 5 and Cliff for 4.



Fred Sibbald and Ted Manning

Ted Manning, Uhlmann Grain Co., Kansas City, past national prexy, tied with Gil Lane, Arcady Farms Mlg. Co., Chicago, another past national prexy, and Jim Auld, Hales & Hunter Co., Minneapolis chapter sec'y, in turning in 3 apiece.



Gilbert Lane and Jim Auld

Sailor-boy Ward A. Combs, Presto-X-Co., Omaha, was first to turn in two new members, followed by Paul H. Christensen, Van Dusen-Harrington Co., Minneapolis, past national president; Ed Josephson, Schreier Malting Co., Sheboygan, past chapter president; O. B. Duncan, Salina Terminal Elevator Co., K. C. chapter pres., and Vin Shea, Van Dusen-Harrington Co., past Minneapolis chapter pres.



Paul Christensen and O. B. Duncan

Omaha chapter pres., Charles F. Walker, Archer-Daniels-Midland Co., not only was the first member to turn in one new member during the past



Charlie Walker and Emil Buelens

contest period, but he also was the first member to get his name recorded in this important activity. Others turning in one member each included: Emil Buelens, Glidden Co., Chicago, SOGES director; Harley J. Hixson,



Harley Hixson and Herbert Brand

Continental Grain Co., vice pres. K. C. chapter; Lou Rendell, Pratt Food Co., Chicago chapter director; Herbert C. Brand, Quaker Oats Co., Cedar Rapids, SOGES vice pres.; Jack Smith, Sarnia (Ont.) Elevator Co., SOGES director; James Mackenzie, Three Riv-



Jack Smith and Jim Mackenzie

ers (Que.) Grain & Elev. Co., Ltd., a past director; Milton N. Martin, Vitality Mills, Inc., Chicago; Jim Kier, Standard Mlg. Co., K. C. chapter sec'y and SOGES director, and Vincent Blum, Omaha (Neb.) Elevator Co.

Combs in Oklahoma City

Ward Combs, now a pharmacist's mate 3rd class, has been transferred from the Naval Hospital at New Orleans to the Office of Naval Officer Procurement at 805 Apco Tower, Oklahoma City, Okla., according to a note from him.

Do you realize that by investing at least 10 percent of your income in Bonds you will be doing yourself a favor—a favor you will be mighty thankful for in years to come?—DALE CARNEGIE.

SEND IN YOUR ITEMS

Other readers of "GRAIN" enjoy reading about you and your activities, just as you like to know what's going on elsewhere in the industry. When something happens—or when you're interested in making something happen—drop us a line with the facts. It needn't be fancy; just tell us who, what, when and where. It's passing on and sharing what we all know and do that helps to make the industry the best dawgone one on the continent. Send 'em in, boys.

He who sidesteps a duty avoids a gain.

Pete Likes Clifton

The wife and I have the swellest home we ever hope to have. We moved (from Baltimore) into a high section of town and all the homes are Dutch colonial or English type. Most everyone owns their home and keep it up, too. We're 40 min. from New Jersey city, but have been too busy with my new job down at the New Jersey Flour Mills to get there so far.—Frank A. Peterson, Clifton, N. J.

HE'LL BE THERE

I have sworn off of conventions
With the very best intentions,
For they take both time and money,
don'tcha know.

Oh, I've sworn that I would quit them
And insisted I'd omit them—

But, when next the old gang gathers,
watch me go!

All the sessions I've attended
Have brought me, before they ended,
Headaches, trouble, grief, expense and
wear and tear;

Still, for all their doggone trouble
They've brought pleasure more than
double,

So, next time the sessions open, I'll
be there!

—Emil Buelens, Glidden Co., Chicago.

DEMAND

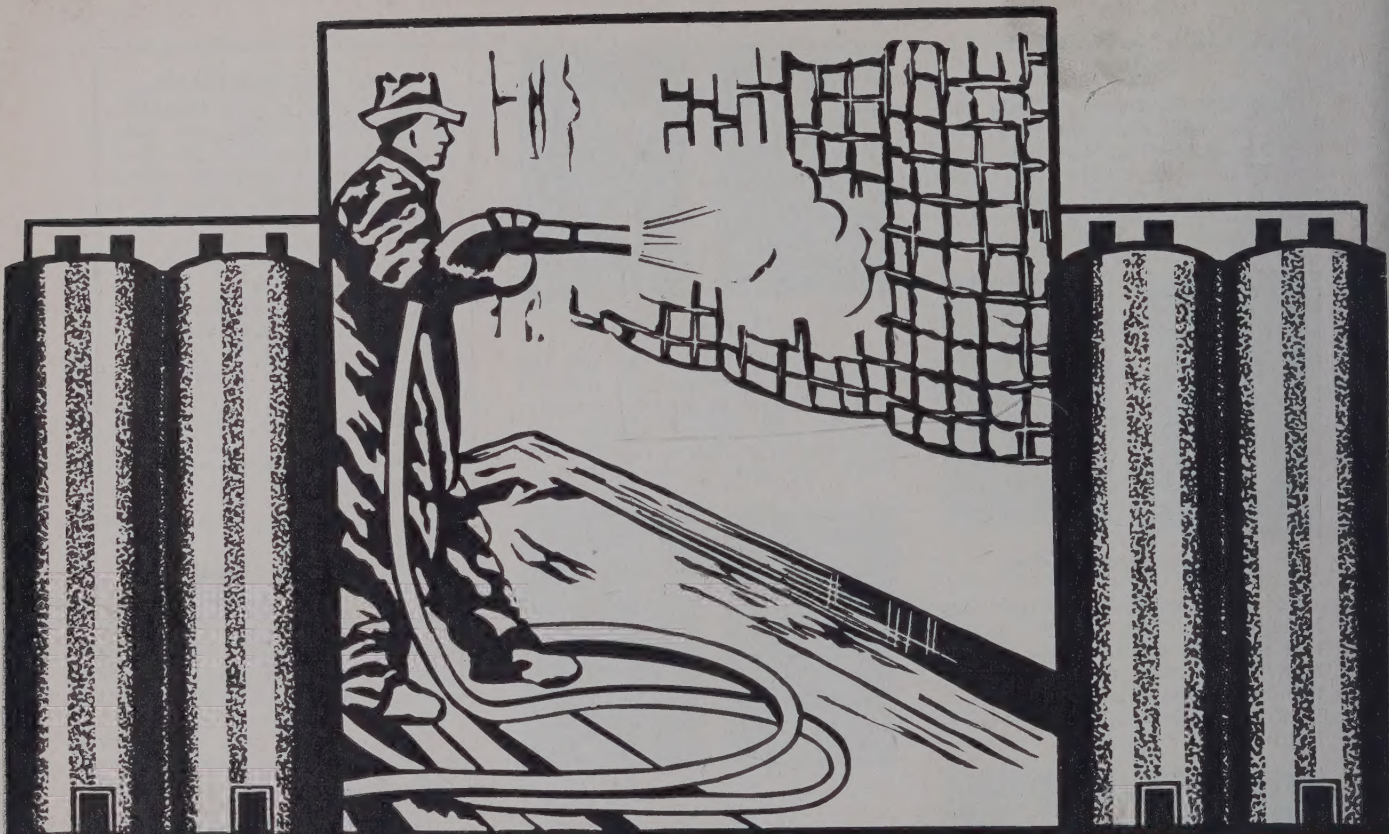
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GUNITE, which does an A-1A job of repairing cracks and concrete disintegration is as hardy and full of fighting spunk as a Leather Neck . . . takes no back talk from time or the elements. Flinty hard, yes *harder* than cement itself, it is a dense weatherproof with a perfect bond to old cement.

SURFACITE, which compensates for movement with an extremely tough elastic hide of

long-life flexible material bonded to the concrete, covers all surfaces *many times the thickness of ordinary waterproofing.*

All of which means, DEPENDABLE DEFENSE against dampness and deterioration. Concrete restoration and weatherproofing at its supreme test.

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